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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/634,763

08/06/2003

Isao Hasegawa

57810-069

6855

7590

09/28/2004

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EXAMINER

COLEMAN, WILLIAM D

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/634,763

Applicant(s)

HASEGAWA ET AL.

Examiner

W. David Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>07/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114.

Applicant's submission filed on July 27, 2004 has been entered.

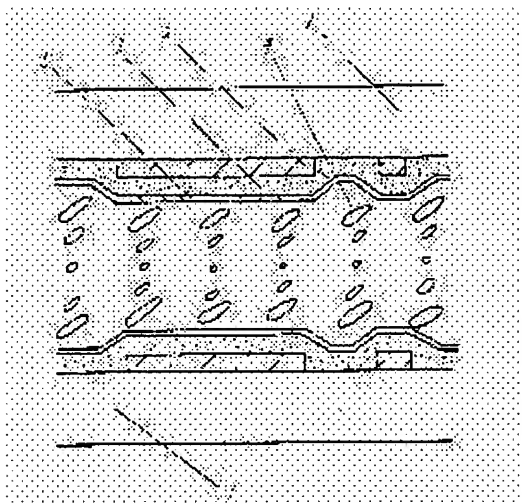
Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Kyoji Momoi, Japanese Patent Abstracts of Japan.



4. Please note that because Applicants only provide an English translation of only the Abstract of the prior art reference, the Examiner takes the position that all of the limitations are met since there is no statement to further distinguish the claimed invention from the prior art.

5. Momoi teaches the claimed invention.

6. Pertaining to claim 1, Momoi teaches a display unit comprising: an insulator film formed on a substrate; a display electrode formed on said insulator film; and an impurity-introduced layer, formed on the surface of said display electrode and the surface of said insulator film, containing an impurity element having high electronegativity.

7. Pertaining to claim 2, Momoi teaches the display unit according to claim 1, wherein said insulator film includes an insulator film containing an organic component.

8. Pertaining to claim 3, Momoi teaches the display unit according to claim 1, wherein said impurity element having high electronegativity includes fluorine.

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9. Pertaining to claim 4, Momoi teaches the display unit according to claim 3, wherein said impurity-introduced layer is formed on the surface of said insulator film, and includes any of a fluoride layer of a silicon oxide film, a fluoride layer of a silicon nitride film and a fluoride layer of a silicon oxynitride film.

10. Pertaining to claim 5, Momoi teaches the display unit according to claim 3, wherein said impurity-introduced layer includes a first layer, formed on the surface of said display electrode, mainly composed of indium fluoride.

11. Pertaining to claim 6, Momoi teaches the display unit according to claim 5, further comprising a second layer, formed on said first layer, mainly composed of carbon fluoride.

12. Pertaining to claim 7, Momoi teaches a display unit comprising: an insulator film formed on a substrate; a display electrode formed on said insulator film; and a first layer, formed on the surface of said display electrode, mainly composed of indium fluoride.

13. Pertaining to claim 8, Momoi teaches the display unit according to claim 7, further comprising a second layer, formed on said first layer, mainly composed of carbon fluoride.

14. Pertaining to claim 9, Momoi teaches a method of fabricating a display unit comprising steps of forming an insulator film on a substrate; forming a display electrode on said insulator film; and

introducing an impurity element having high electronegativity into at least a portion of said insulator film not covered with said display electrode after formation of said display electrode.

15. Pertaining to claim 10, Momoi teaches the method of fabricating a display unit according to claim 9, wherein said step of introducing said impurity element includes a step of etching the

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surface of at least said portion of said insulator film not covered with said display electrode simultaneously with introduction of said impurity element.

16. Pertaining to claim 11, Momoi teaches the method of fabricating a display unit according to claim 9, wherein said step of introducing said impurity element having high electronegativity includes a step of exposing at least said portion of said insulator film not covered with said display electrode to plasma containing said impurity element having high electronegativity.

17. Pertaining to claim 12, Momoi teaches the method of fabricating a display unit according to claim 9, wherein said step of introducing said impurity element having high electronegativity includes a step of exposing at least said portion of said insulator film not covered with said display electrode to a radical containing said impurity element having high electronegativity.

18. Pertaining to claim 13, Momoi teaches the method of fabricating a display unit according to claim 9, wherein said step of introducing said impurity element having high electronegativity includes a step of exposing at least said portion of said insulator film not covered with said display electrode to gas containing said impurity element having high electronegativity.

19. Pertaining to claim 14, Momoi teaches the method of fabricating a display unit according to claim 9, wherein said step of introducing said impurity element having high electronegativity includes a step of exposing at least said portion of said insulator film not covered with said display electrode to liquid containing said impurity element having high electronegativity.

20. Pertaining to claim 15, Momoi teaches the method of fabricating a display unit according to claim 9, wherein said step of introducing said impurity element having high electronegativity includes a step of introducing ions

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containing said impurity element having high electronegativity into at least said portion of said insulator film not covered with said display electrode.

21. Pertaining to claim 16, Momoi teaches the method of fabricating a display unit according to claim 9, wherein said insulator film includes an insulator film containing an organic component.

22. Pertaining to claim 17, Momoi teaches the method of fabricating a display unit according to claim 9, wherein said impurity element having high electronegativity includes fluorine.

23. Pertaining to claim 18, Momoi teaches the method of fabricating a display unit according to claim 17, wherein said step of introducing said impurity element includes a step of forming any of a fluoride layer of a silicon oxide film, a fluoride layer of a silicon nitride film and a fluoride layer of a silicon oxynitride film on the surface of said insulator film by introducing said impurity element.

24. Pertaining to claim 19, Momoi teaches the method of fabricating a display unit according to claim 9, wherein

said step of introducing said impurity element having high electronegativity includes a step of introducing said impurity element having high electronegativity into both of said insulator film and said display electrode.

25. Pertaining to claim 20, Momoi teaches the method of fabricating a display unit according to claim 19, wherein said step of introducing said impurity element having high electronegativity includes a step of fluorinating said display electrode thereby forming a first layer mainly composed of indium fluoride on the surface of said display electrode.

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26. Pertaining to claim 21, Momoi teaches the method of fabricating a display unit according to claim 20, wherein said step of fluorinating said display electrode includes a step of forming said first layer mainly composed of indium fluoride on the surface of said display electrode while forming a second layer mainly composed of carbon fluoride on said first layer by exposing the surface of said display electrode to plasma containing fluorine and carbon.

27. Pertaining to claim 22, Momoi teaches the method of fabricating a display unit according to claim 19, wherein

said step of introducing said impurity element having high electronegativity includes a step of depositing a first layer mainly composed of indium fluoride on said display electrode by sputtering.

28. Pertaining to claim 23, Momoi teaches a method of fabricating a display unit comprising steps of: forming an insulator film on a substrate; forming a display electrode on said insulator film; and forming a layer containing fluorine on the surface of said display electrode.

29. Pertaining to claim 24, Momoi teaches the method of fabricating a display unit according to claim 23, wherein said step of forming said layer containing fluorine includes a step of forming a first layer mainly composed of indium fluoride on the surface of said display electrode while forming a second layer mainly composed of carbon fluoride on said first layer by exposing the surface of said display electrode to plasma containing fluorine and carbon.

30. Pertaining to claim 25, Momoi teaches the method of fabricating a display unit according to claim 23, wherein said step of forming said layer containing fluorine includes a step of depositing a first layer mainly composed of indium fluoride on said display electrode by sputtering.

Claim Rejections - 35 USC § 103

31. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

32. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyoji Momoi, Patent Abstracts of Japan 01-185617 in view of Ota et al., Patent Abstract of Japan, 10-186410, Yamaji et al., Patent Abstract of Japan, 08-152651 and Iwasaki, Patent Abstract of Japan 10-170949.

33. Claims 1-25 are unpatentable over the various references because Applicants believe the cited references relying only on the Abstracts reads on the claimed invention by the various combinations of the cited references.

34. Applicants should provide a full English translation to overcome the prior art rejection.

Conclusion

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856.

The examiner can normally be reached on 9:00 AM-5:00 PM.

36. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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37. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



W. David Coleman
Primary Examiner
Art Unit 2823

WDC